

AY23 Sem2 Computer Based Assessment Question Paper

Sleep

Introduction

Sleep is important. Insufficient sleep has been linked to poor concentration, reduced immunity, and even hallucination. The dataset contains data on sleep (including various phases of sleep) and lifestyle factors. Refer to Appendix A for more information on the variables.

Part A: Data Exploration and Research Questions (30%)

1. Explore the data and show three interesting findings.
2. Propose two research questions that can be answered from the dataset and models learnt in this course.
3. State the target variable and input variables that will be used. Explain your choice.

Part B: Analytics and Models¹ (40%)

4. Compare the predictive performance of at least 2 types of model learnt in this course for the target variable, and display the results in a table. Which model performed the best? Note: one of the model must be CART.
5. Answer the two research questions.

Part C: Conclusion and Key Insights (30%)

6. Summarize the most important findings from analytics in less than 500 words.
7. Suggest a way that your model could be used in the real world. Explain.

¹ Your code (e.g., Rscript, Python script) must be submitted as separate files but all answers should be complete in the CBA Submission word document file without having to read/execute any other files.

About the Dataset

ID:	Person ID.
Age:	Age of the person.
Gender:	Gender of the person.
Bedtime:	Time goes to bed.
Wakeup Time:	Time wakes up.
Sleep Duration:	Amount of Time Slept (Hours).
Sleep efficiency:	Proportion of time spent in bed that is actually spent asleep.
REM sleep percentage:	Percentage of time in Rapid Eye Movement (REM) sleep.
Deep sleep percentage:	Percentage of time in Deep sleep.
Light sleep percentage:	Percentage of time in Light sleep.
Awakenings:	Number of times that the person wakes up during the night.
Caffeine consumption:	Amount of Caffeine consumed in the 4 hrs prior to bedtime.
Alcohol consumption:	Amount of Alcohol consumed in the 4 hrs prior to bedtime.
Smoking Status:	No or Yes to smoking in the 4 hrs prior to bedtime.
Exercise frequency:	Number of exercises (at least 30 mins) per week.
Daily Steps:	Number of Steps in that day prior to bedtime.